

(b) If a semiconductor-rectifier system is used in a propulsion system or in another vital system, it must—

- (1) Have a current-limiting circuit;
- (2) Have external overcurrent protection; and
- (3) Comply with sections 4/5.84.2 and 4/5.84.4 of the ABS's "Rules for Building and Classing Steel Vessels."

#### § 129.370 Equipment grounding.

(a) On a metallic OSV each metallic enclosure and frame of electrical equipment must be permanently grounded to the hull. On a nonmetallic vessel each enclosure and frame of electrical equipment must be bonded to each other and to a common ground by a conductor not normally carrying current.

(b) Each metallic case of instruments must be grounded. So must each secondary winding of instrument transformers.

(c) Each equipment grounding conductor must be sized to comply with section 250-95 of NEC (NFPA 70).

(d) Each nonmetallic mast and topmast must have a lightning-ground conductor.

#### § 129.375 System grounding.

(a) If a grounded distribution system is provided, there must be only one connection to ground, regardless of the number of power sources. This connection must be at the main switchboard.

(b) On each metallic OSV a grounded distribution system must be grounded to the hull. On each nonmetallic vessel the neutral of a grounded system must be connected to a common ground plate, except that no aluminum grounding conductors may be used.

(c) On each nonmetallic OSV with a grounded distribution system, the common ground plate must have—

- (1) Only one connection to the main switchboard; and
- (2) The connection to itself readily accessible for checking.

(d) On each nonmetallic OSV with a ground plate provided for radio equipment, the plate must be connected to the common ground plate.

(e) Each insulated grounding-conductor of a cable must be identified by one of the following means:

- (1) Wrapping of the cable with green braid or green insulation.

(2) Stripping of the insulation from the entire exposed length of the grounding-conductor.

(3) Marking of the exposed insulation of the grounding-conductor with green tape or green adhesive labels.

(f) No OSV's hull may carry current as a conductor except for—

- (1) An impressed-current cathodic-protection system; or
- (2) A battery system to start an engine.

(g) No cable armor may be used to ground electrical equipment or systems.

(h) Each receptacle outlet and attachment plug, for a portable lamp, tool, or similar apparatus operating at 100 or more volts, must have a grounding-pole and a grounding-conductor in the portable cord.

#### § 129.380 Overcurrent protection.

(a) Overcurrent protection must be provided for each ungrounded conductor, to open the electric circuit if the current reaches a value that causes an excessive or dangerous temperature in the conductor or its insulation.

(b) Each conductor of a control, interlock, or indicator circuit, such as a conductor for an instrument, pilot light, ground-detector light, or potential transformer, must be protected by an overcurrent device.

(c) Each generator must be protected by an overcurrent device set at a value not exceeding 115 percent of the generator's full-load rating.

(d) Circuits of control systems for steering gear must be protected against short circuit.

(e) Each feeder circuit for steering gear must be protected by a circuit breaker that complies with §§111.93-11 (a) and (b) of this chapter.

(f) Each branch circuit for lighting must be protected against overcurrent by either fuses or circuit breakers. Neither the fuses nor the circuit breakers may be rated at more than 30 amperes.

(g) Each conductor must be protected in accordance with its current-carrying capacity. If the allowable current-carrying capacity does not correspond to a standard size of device, the next larger overcurrent device may be used, unless it exceeds 150 percent of the conductor's current-carrying capacity.